Before the Selwyn District Council

under: the Resource Management Act 1991

in the matter of: Proposed Private Plan Change 73 to the Operative District Plan: Dunns Crossing Road, Rolleston

and: **Rolleston West Residential Limited**
Applicant

Statement of Evidence of Mark Lewthwaite (Acoustic)

Dated: 13 September 2021

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STATEMENT OF EVIDENCE OF MARK LEWTHWAITE

INTRODUCTION

1 My full name is Mark Douglas Lewthwaite.

2 I am an acoustic consultant with 15 years of experience. I lead the Powell Fenwick acoustic team.

3 I am a Chartered Professional Engineer and Associate Member of the Acoustical Society of New Zealand.

4 Within the field of environmental noise assessment, my expertise relevant to this Plan Change application includes noise monitoring, prediction of noise from rural and infrastructural activities, and acoustic insulation of dwellings from road noise, along with the implementation of the above in the context of rules within district plans.

5 I am familiar with the plan change application by Rolleston West Residential Limited (the *Applicant*) to rezone approximately 160 hectares of land in two separate locations on Dunns Crossing Road, Rolleston to enable approximately 2,100 residential sites and two commercial areas.

CODE OF CONDUCT

6 Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 7 of the Environment Court Practice Note 2014. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

7 My evidence will deal with the following:

7.1 Reverse sensitivity noise effects due to the proposed intensification of residential activities in the Holmes Block and Skellerup sites most specifically;

7.2 State Highway 1 (SH1) and Main South Line noise affecting the Holmes Block;

7.3 Resource Recovery Park (RRP) noise (on-site as well as that generated by vehicle movements on public roads) affecting the Holmes Block;

7.4 Waste Water Treatment Plant (WWTP) noise affecting the Holmes Block;

7.5 Poultry farm noise affecting the Skellerup Block; and

7.6 Future infrastructure expansion.

SUMMARY OF EVIDENCE

8 My evidence concludes that reverse sensitivity noise effects due to the proposed intensification of residential activities in the Holmes Block and Skellerup sites can be acceptably mitigated.

9 SH1 noise and Main South Line affecting the Holmes Block should be subject to rules 4.9.3. and 4.9.4. of the Selwyn District Plan. This is consistent with the adjacent Stonebrook subdivision, and equal to or better than wider design guidance for road traffic noise. This would impose a 40 m setback from SH1 to residential lots, and internal design sound levels of 35 dB $L_{Aeq(24hr)}$ in bedrooms and 40 dB $L_{Aeq(24hr)}$ in living areas.

10 In order to assist in achieving the internal design noise level criteria and to provide reasonably practicable mitigation of the SH1 noise to reduce outdoor noise levels, a 3 m high acoustic fence/bund alongside SH1 is recommended.

11 To mitigate sleep disturbance from RRP truck and trailer units passing along the south boundary of the Holmes Block along Burnham School Rd or the east boundary up Dunns Crossing Rd before 0800 h each day I recommend the construction of a 2 m high acoustic fence, or alternatively a speed reduction to 60 km/h and setback or acoustic insulation approach. The latter may be a more desirable means of noise mitigation to allow vehicle access onto Burnham School Rd.

12 The WWTP located approximately 800 m from the boundary of the Holmes Block, in operation, along with associated vehicle movements and irrigation closer to the Holmes Block would not be expected to have observable noise effects within the Block.

13 Poultry farming noise from north of the Skellerup site is acceptable at distances of greater than 150 m from the sheds to the proposed residential lots.

14 Otherwise, the general noise environment is typical of rural environments with modest traffic volume rural roads,

notwithstanding the potential for seasonal farming activities to be part of the sound environment. This is typical of residential to rural boundaries and is an acceptable environment for residential dwellings.

15 Increased noise due to future demand on infrastructure will not be significant, as current levels from the RRP and WWTP are very low and there is headroom for upscaling activities without reaching levels offensive in a residential environment. Those activities already have to meet District Plan noise limits with the current Living 3 zoning.

BACKGROUND CORRESPONDENCE

16 Relevant background correspondence consists firstly of Powell Fenwick Design Advice Memo A01 Issue B dated 17 Nov 2020, titled "Rolleston West Plan Change (ODP Area 39 and 40)" written by James Glen. This was a comparitive noise criteria assessment of principally the Holmes Block at 385 Burnham Rd to established SH1 abutting residential subdivisions at Stonebrook and ODP Area 3/8. I have adopted the work.

17 We received Selwyn District Council RFI dated 22 Dec 2020, titled "PC200073: Private Plan Change Request to the Operative Selwyn District Plan from Rolleston West Residential Limited in Rolleston – Request for further information", which included an accompanying noise review by Acoustic Engineering Services (AES), dated 18 Dec 2020, File Ref: AC20356 – 01 – D1, "Private Plan Change Request 73".

18 I responded with Design Advice Memo A02 Issue B dated 02 Feb 2021, titled "Rolleston West Plan Change (ODP Area 39 and 40) – Addendum 1 RFI Response". This advice memo added assessment of noise from the Resource Recovery Park operations and Waste Water Treatment Plant on the Holmes Block and poultry farming noise on the Skellerup block at Dunns Crossing Rd as well as comment on the local road traffic environments.

19 We received the Section 42A Report on 06 Sep 2021. It is titled Private Plan Change 73, dated 06 Sep 2021, and was prepared by Ms Liz White. Accompanying the S42A report and of most relevance to noise matters was a noise peer review by AES "File Ref: AC20356-02-R3, Re: Private Plan Change Request 73, Review of noise assessment", dated 03 Sep 2021. Also relevant was the "Officer Comments of Andrew Boyd" in his capacity as Solid Waste Manager at the Selwyn District Council.

20 Two other submissions, from Jason Horne and Waka Kotahi, contained specific comments regarding noise.

SH1 NOISE AND MAIN SOUTH LINE NOISE AND COMPARISON TO OTHER DEVELOPMENTS

21 We undertook assessment comparing factors affecting the noise generated by SH1 at the Holmes Block to those same factors at established Stonebrook and ODP 3/8 residential subdivisions located to the east and also with SH1 adjacency. We also compared Selwyn District Plan (SDP) rule and mitigation outcomes with reference to Waka Kotahi NZTA guidance such as "Guide to the management of effects on noise sensitive land use near to the state highway network", dated Sep 2015, Version 1.0.

22 Traffic volume, road surface type, speed limit, gradient and extent of significant reflecting surfaces on the opposing side of the road are the main factors affecting road noise generation by highways. All factors were assessed to be substantially identical across the three sites.

23 Current acoustic insulation and setback rules for the three sites are tabulated below with comparison also to NZTA guidance (which references NZS 6806:2010 Acoustics - Road-traffic noise - New and altered roads). The intensified sub-divisions and Waka Kotahi NZTA guidance all take an internal design noise level approach to the criteria (as opposed to a fixed external to internal noise reduction approach).

Table 1. Comparison of Subdivision Rules

Subdivision Rule/ Guidance	**Setback Distance (m)**	**Effects Buffer (m)**	**Noise Criteria**
Living 3 Zone (Rule 4.9.38)	80	N/A	N/A
Stonebrook (Rule 4.9.3/4)	40	100	Bedrooms 35 dB $L_{Aeq(24hr)}$ Living areas 40 dB $L_{Aeq(24hr)}$
ODP Area 3/8 (Rule 4.9.35/36)	40	100	Bedrooms 40 dB $L_{Aeq(T)}$, Living areas 45 dB $L_{Aeq(T)}$ – based on AS/NZS 2107:2016 criteria
NZTA Guidance / NZS 6803	40	100	All habitable spaces 40 dB $L_{Aeq(24hr)}$

24 Considering the above, I recommend that the existing rule wording and noise level criteria in rules 4.9.3 and 4.9.4 should be applicable to the proposed Holmes block (ODP Area 39). This rule wording is consistent with the adjacent Stonebrook subdivision, and equal to or better than wider design guidance for road traffic noise. This would prohibit habitable spaces of dwellings being less than 40 m from the carriageway and impose internal design sound levels of 35 dB $L_{Aeq(24hr)}$ in bedrooms and 40 dB $L_{Aeq(24hr)}$ in living areas 40-100 m from the carriageway. Noise levels described as "dB L_{Aeq}" are equivalent continuous noise levels over the given period, more casually referred to as "average" noise levels.

25 In order to assist in achieving the internal design noise level criteria and to provide reasonably practicable mitigation of the SH1 noise to reduce outdoor noise levels I consider that an acoustic fence should be included alongside SH1. The acoustic fence should be 3 m high and be constructed of a material with a surface mass minimum 10 kg/m^2 such as 24 mm overlapped timber palings, embeded in the ground. The fence must be a continuous barrier to noise. The barrier height may be made up in whole or in part by a landscaping bund. Other materials or construction detailing may also be suitable subject to approval by a suitably experienced acoustic engineer. An acoustic engineer should also review the subdivision plan site levels and where necessary the constructed site levels to ensure the intended screening effect is achieved.

26 The AES noise peer review drew the same conclusion, that "… *the situation represents an improvement over which could happen currently (in regards to worst case noise levels), and is consistent with the setback for the buffer area in the Waka Kotahi Guidelines*."

27 Rail noise has not otherwise been given attention to in our previous reports, but for completeness I note the presence of the Main South Line immediately north of SH1. Given the additional distance to the Holmes Block and occasional rail movements only (noting the Midland Line rail traffic diverts approximately 2 km to the north-east) the noise effects will be less than that of SH1, and in any case attenuated by the proposed SH1 mitigation measures.

RESOURCE RECOVERY PARK NOISE

28 Observations and measurements of the existing noise environments at the Holmes Block and Skellerup Block were conducted on Thursday 26 Jan 2021 by James Glen of Powell Fenwick.

29 There was no observable noise from the Resource Recovery Park (RRP) at the closest corner of the Holmes Block amidst the ambient noise environment. I do not consider onsite activities are likely to

have any effect even in lower ambient noise situations given the separation of over 300 m from the RRP dumping location to the closest corner of the Holmes Block, with setbacks to the boundary also proposed.

30 The RFI item 10 also raised the matter of associated heavy vehicle movements along Burnham School Rd. From a phone conversation with Mr Andrew Boyd, SDC Solid Waste Manager, we understood there were in the order of seven "H-marked" truck and trailer movements each day, between 0400-1300 h, taking waste from the site. 2-3 could be expected to be before 0800 h, being the end of the night-time period in the SDP.

31 At these hours, even at low traffic levels, sleep disturbance could result from short, loud noise events. The truck and trailer units are likely to cause maximum noise levels similar to the louder vehicles measured during the sample measurement which were up to and in the order of 85 dB L_{Amax} at 5 m from the road.

32 We expect that closest bedrooms would be likely be in the order of 10 m from the carriageway. A bund or acoustic fence of 2 m height was presented to us as a positive design outcome. With such a bund or fence a noise event from a heavy vehicle would be more likely in the order of 75 dB L_{Amax}. This is a clarification on the values presented in my Design Advice Memo A02 which, upon further consideration, 5 dB reduction in level is appropriate when determining a maximum noise level at 10 m from the carrigeway from measurements at 5 m from the carriageway.

33 The World Health Organisation (WHO) Guidelines for Community Noise 1999 states that inside bedrooms for avoidance of night time sleep disturbance, 45 dB L_{Amax} is an an appropriate design threshold.

34 Based on standard constructions and the acoustic fence this level would not always be met. However many residential developments near through roads will have similar heavy vehicle movements without any acoustic insulation or set back requirements, and this is generally tolerated. Specific to the local environment, the same RRP heavy vehicles will pass northwards up Dunns Crossing Rd passing residential dwellings. No noise rule is operative or is in the Proposed Selwyn District Plan for protecting those dwellings as they stand or may be altered, or for further new builds.

35 One difference between Burnham School Rd and Dunns Crossing Rd would be the higher speed limit of 100 km/h on Burnham School Rd, compared to 60 km/h along the northern section of Dunns Crossing Rd, however approximate equivalency would be achieved with the construction of an acoustic standard of fence.

36 With reference to the AES noise peer review s1.2, Dr Trevathan comes to the same conclusion with regards to mitigation acceptabilty, however preferred an assessment method which compared predicted noise levels favourably to a very low noise criteria of 45 dB L_{Aeq}. I prefer the approach to consider maximum noise levels, as maximum noise levels more directly correlate with sleep disturbance events.

37 Mr Boyd in his Officer's report in paragraph 40, advises that truck and trailer trips may grow by a factor of six by 2044, which would result in 18 pre 0800 h trips, and 42 in total each day. He contends that the measurements taken did not include louder empty RRP truck and trailer units, and for these reasons he considers the effects on residents would be greater than the acoustic assessment has suggested.

38 Expansion in the number of vehicles had not been expressly factored into our assessment, however the difference is not significant to the assessment on Burnham School Rd as increasing the very low number of vehicle movements on Burnham School Rd by a small number will still result in a low equivalent continuous noise level. I see the higher noise level events as the more significant noise effect to be assessed and in this regard the maximum noise levels experienced at the proposed residential sites will remain the same, there just being more frequent events.

39 The increase in RRP truck and trailer movements would justify similar mitigation of maximum noise levels along Dunns Crossing Rd.

40 Road noise levels could also be reduced in the future with the installation of low noise asphalt surfaces.

41 While we did not measure empty RRP truck and trailer units we did measure a range of other full and empty heavy vehicles along Burnham School Rd and have used the highest recorded value of 85 dB L_{Amax} for assessment purposes which I consider provides appropriate conservatism.

42 Mr Boyd in paragraphs 42 and 43 supports mitigation measures such as greater setbacks, bunding, and speed limit reduction to 80 km/h.

ALTERNATIVE APPROACH TO RRP TRUCK AND TRAILER NOISE MITIGATION

43 Notwithstanding the above, and as identified in the 42A report, later consultation determined a preference to avoid an acoustic fence along Burnham School Rd for improved urban design outcomes. We understand this would be expected to have an altered strategy with

vehicle entry from Burnham School Rd, and a resulting speed reduction to 60 km/h. The following additional comments address this possibility.

44 The reduction in speed from 100 km/h to 60 km/h would create equivalency to residential dwellings on Dunns Crossing Rd, therefore it could be argued there is a precedent that no acoustic insulation or setback should be required.

45 However noting the known early morning source of road traffic noise due to the RRP truck and trailers, and reported future increase in RRP truck and trailer movements, I recommend implementation of a setback or acoustic insulation rule for bedrooms only along the RRP heavy vehicle route i.e. including along Dunns Crossing Rd.

46 Firstly, the rule should only apply to bedrooms that are within a certain set back. Bedrooms greater than 15 m from the carriageway would have lower noise exposure and would tend to be on the side of dwellings with only one external wall exposure to the bedroom.

47 Secondly, I propose an external to internal noise reduction of 30 dB $D_{tr,2m,nt,w} + C_{tr}$ rather than design internal noise levels. This is because (a) at low vehicle volumes prediction of equivalent continuous noise levels is not reliable, (b) maximum noise events are the issue to be addressed, (c) determination of suitable maximum noise event levels would result in differing outcomes from one engineer to another, (d) the noise exposure is reasonably known, (e) the rule would be straight forward and cost effective to assess by an acoustic engineer without specific site assessment, and (f) it is an enhancement level that is reasonably practicably implemented.

48 Alternative ventilation should also be included for bedrooms within that 15 m setback, as in reasonably forseeable cases the windows would need to be closed to meet the noise reduction requirement. (An exception might be where there is a window on the rear side of a bedroom, well screened from the road.)

49 "Alternative ventilation" will almost certainly mean mechanical ventilation. The mechanical ventilation should be sufficiently quiet so to not negate the benefit of closing the windows.

50 The proposed noise rule could therefore be worded as follows:

Any bedroom in the Holmes Block shall:

(i) be set back at least 15m from the sealed carriageway of Burnham School Road or Dunns Crossing Road; or

(ii) have an external to internal noise reduction of 30 dB $D_{tr,2m,nT,w}$ + C_{tr}, as assessed by a suitably qualified and experienced acoustic engineer. The noise reduction must be achieved in conjunction with NZBC Clause G4 compliant ventilation in operation which, as windows would typically need to be closed to achieve the noise reduction, alternative compliant means of ventilation shall be installed such as mechanical ventilation. A ventilation system shall generate noise no greater than 30 dB LAeq(10sec) measured at 1.5 m from the diffuser, at 1.5 m above floor level, and at least 1 m from any wall, with the system providing a design airflow compliant with NZBC Clause G4/AS1.

51 Any rule can be "worked around" by naming a potential bedroom as a study or games room. We note that existing rules have not attempted to control this, therefore the proposed rule should also not address this point unless SDC have encountered issues in this regard.

52 We have considered the equivalency of the reduced speed and setback or acoustic insulation approach to the earlier proposed fence on Burnham School Rd. They are different ways of mitigating noise and therefore the benefit is not the same in all cases, however we consider a few simplified scenarios:

i. In the case of a bedroom 10 m from the carriageway considering night time maximum noise events, it might have been afforded 5 dB of protection from an acoustic fence, instead it may now benefit from 3 dB reduction due to reduced road speed as well as (speculatively) an average of 5 dB reduction due to the bedroom having to meet an external to internal noise reduction of 30 dB. The occupant of the bedroom is therefore likely better off when windows are closed, and worse off with windows open – noting the new rule would require alternative means of ventilation to support the closing of windows.

ii. In the case of a bedroom 20 m from the carriageway considering night time maximum noise events, it might have been afforded no more than 5 dB of protection from an acoustic fence, instead it may now benefit from 3 dB reduction due to reduced road speed so would have a comparable outcome. The occupant of the bedroom is therefore in a similar situation when windows are closed, and as per the first scenario, worse off with windows open.

iii. In the case of the day time enjoyment of an outdoor area when equivalent continuous noise levels (dB L_{Aeq}) are more relevant, in the acoustic fence scenario with north vehicle access the primary outdoor area would most likely be to the south and west of the site, say 10 m from the carriageway. In

this position it might have been afforded 5 dB of protection from an acoustic fence. Whereas with no acoustic fence and south access the primary outdoor area would likely be to the north say a minimum 20 m from the carriageway, which may now benefit from 3 dB reduction due to reduced road speed and 3 dB lower noise exposure due to increased setback. If the outdoor area was positioned with the respective dwelling between it and Burnham School Rd, there would be further screening benefit from the dwelling. The occupant of the outdoor area is therefore in a similar or better position with the speed reduction and increased distance to the outdoor area.

53 Based on the above simplified scenarios overall there is equivalency of the reduced speed with set back or acoustic insulation approach to the earlier proposed 2 m acoustic fence, which would support the urban design preference for access from Burnham School Rd.

WASTE WATER TREATMENT PLANT NOISE

54 The WWTP, located approximately 800 m from the boundary of the Holmes Block would not be expected to have observable noise effects within the Holmes Block. Related irrigation would be intermittent and has a minimum setback of approximately 160 m from the Block, with further margin to housing considering likely odour setbacks. Some irrigation activities can be expected near residential interfaces with rural land. Any vehicle traffic related to the Waste Water Treatment Plant would be occasional and of negligible effect.

POULTRY FARM NOISE

55 Observations and measurements of the existing noise environments at the Holmes Block and Skellerup Block were conducted on Thursday 26 Jan 2021 by James Glen of Powell Fenwick.

56 The dominant source of noise at the Skellerup site was road traffic on Dunns Crossing Rd. Noise from a poultry farm established on the block directly north of the site included what appeared to be a conveyor/feeding system type noise and was briefly audible between road traffic movements.

57 The poultry farming equipment in the sheds created noise estimated to be 46 dB L_{Aeq} at the measurement position 70 m from the sheds, identifiable in between road traffic and natural environmental noise sources. We understand due to odour concerns, the closest housing proposed will be 150 m from the sheds and therefore noise levels would be expected to be in the order of 40 dB L_{Aeq}. This level is reasonable and common in a residential context and meets NZS 6802:2008 Acoustics – Environmental noise guidance of 55 dB L_{Aeq}

and 45 dB L_{Aeq} during the day-time period and the more stringent night-time period respectively.

OTHER NOISE SOURCES

58 The site observations affirmed that the noise environment is typical of rural environments with modest traffic volume rural roads, notwithstanding the potential for seasonal farming activities to be part of the sound environment. This is typical of residential to rural boundaries and is an acceptable environment for residential dwellings.

59 We are of the understanding that residential development of the Skellerup block would likely result in a speed reduction from 80 km/h applicable across part of the site to 60 km/h across all of the site. This is material to road noise effects not being given detailed assessment.

60 Construction noise should be managed in accordance with NZS 6803:1999 Acoustics – construction noise. Construction noise can cause nuisance, however with road separations or equivalent distance to nearby dwellings, and road traffic noise typically being present in the community, construction noise should be tolerable.

EXPANSION OF THE WWTP AND RRP

61 Expansion of infrastructure related to growth in the District (refer RFI item 6), is not expected to have significant impact on the proposed rezoning from a noise perspective, for the following reasons:

a) Whether is it the same on site activity occurring twice as frequently (such as drop offs at the RRP) or twice the output required (such as two pumps operating instead of one at the WWTP), acoustic scaling would predict noise increase in the order of 3 dB in equivalent continuous noise levels which is minimal increase in the context of the current low operational noise exposure.

b) If the infrastructure activity was to fundamentally change, it would still need to address noise exposure at the blocks, which are presently zoned for rural residential activities.

c) Additional service vehicle movements on the road would not increase the maximum noise exposure, and as they are likely to be a small proportion of overall traffic flow, equivalent continuous noise levels are unlikely to measurably increase (as noted earlier in this evidence).

d) Additional truck and trailer unit trips during early hours may increase proportionally with other vehicle traffic so the effect would remain in context.

e) Significant further growth in housing may also result long term in reduced speeds on Burnham School Rd, which would reduce equivalent continuous noise levels from road traffic.

f) Dunns Crossing Rd is now proposed to have acoustic mitigation following clarification of future RRP truck movements.

S42A REPORT

62 The S42A report by Ms White broadly endorses the acoustic review by Dr Trevathan in paragraphs 108-111, supporting the application mitigation proposed.

63 However in paragraph 137 Ms White notes that urban design advice wishes an "opened up" southern boundary to the Holmes Block which is limited by the need to address RRP truck movement noise. In paragraph 216.b. this lack of connectivity leads Ms White to advise declining the rezoning of the Holmes Block.

64 In response to this and other prompts, an alternative speed reduction and setback or acoustic insulation approach is proposed that would support access to southern Holmes Block sites from Burnham School Rd, covered in "Alternative Approach To RRP Truck And Trailer Noise Mitigation" section earlier in this evidence.

OTHER SUBMITTERS

65 Mr Jason Horne in his Point 4 opposes the submission as he stated the "provided noise assessment makes no mention of the chicken farms" – which must be a misunderstanding as we did assess noise from poultry farms in our Design Advice Memo A02 p.5.

66 Mr Horne comments the chickens are loud and their noise very distressing and the sheds are frequently water blasted, the noise related being considerable and disruptive.

67 Our observations and survey demonstrated noise character and levels that are not unreasonable. Water blasting was not witnessed but my opinion would be of a level and frequency such that it is unlikely to make intensification of residential living, at an increased setback to the residential activities presently permitted, unacceptable.

68 In any case the poultry farming activities are likely to subject to the Living boundary noise criteria which protects the residential development from unreasonable noise levels.

69 Waka Kotahi NZTA in paragraphs 15-17 support the approach to noise reduction from SH1 but note the subdivision and setback measures should reflect improvements to the intersection.

CONCLUSIONS

70 The Holmes Block and the Skellerup site are subject to noise effects from the nearby RRP and poultry farming activities respectively. Otherwise the noise environment would be typical to rural areas adjoining urban residential environments.

71 Noise from early RRP truck and trailer units and other vehicle movements on Burnham School Rd may cause night-time sleep disturbance at residential sites located alongside Burnham School Rd within the Holmes block. However, if (a) the landscaping on Burnham School Rd incorporated an acoustic barrier fence of at least 2m height, the noise exposure at the exterior of a bedroom would be reduced to levels in the order of 75 dB L_{Amax}, or if (b) via a speed reduction to 60 km/h and minimum bedroom set back or acoustic insulation approach, the internal sound level would be reduced to levels in the order of 45 dB L_{Amax} in bedrooms. These levels are reasonable in my view.

72 The poultry farming sheds at Dunns Crossing Rd immediately north of the Skellerup block, if the proposed 150 m setback from the poultry sheds to housing within the Skellerup site was implemented, would generate noise levels in the order of 40 dB L_{Aeq} at the closest proposed residential sites, which is reasonable in the context of New Zealand guidance criteria.

Dated: 13 September 2021

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Mark Lewthwaite